

## ABSTRACT

**Key Terms:** Parent involvement, Common Core State Standards, Homework, K – 2 Mathematics

In this study, the 2015 REU mathematics team from Elizabeth City State University (ECSU) extended on research done by the 2014 summer REU mathematics team. A workshop was provided to assist parents to a better understanding of student homework assignments on the North Carolina Common Core State Standards for K-2 Mathematics. Parent involvement is defined as parent participation in the educational processes and experiences of their children. A chi-square analysis was used to analyze data collected from a pre survey and post survey administered to participants in the workshop. The study revealed all of the individual components of parent involvement were positively and significantly related to educational goals. The study identified various aspects of parent involvement that yielded statistically significant results in affirming that parent involvement attributed positively to urban student achievement. These findings were particularly helpful for indicating which kinds of parent involvement influenced academic success. Remarkably, parent expectations and styles demonstrated a strong relationship with scholastic outcomes. Parent expectations and styles created an educationally oriented ambience that established an understanding of certain level of support the child needed to succeed academically. The REU mathematics team focused on three essential questions in this study: (1) What practices will increase parent awareness of K-2 NC-CCSS for mathematics at P. W. Moore Elementary School? (2) What methods can be used to strengthen parent skills in assisting with mathematics homework assignments at P. W. Moore Elementary School? (3) What actions can be taken to motivate parent involvement in the school improvement process focusing on mathematics at P. W. Moore Elementary School?

## PURPOSE

The purpose of this research was to develop training sessions in mathematics support skills for parents and/or guardians of K-2 grade students enrolled at P. W. Moore Elementary School. Parents’ attitudes toward mathematics have an impact on children’s attitudes. This process will extend mathematical concepts from the classroom to home and establish the idea that mathematics is not just a school subject, but an everyday subject.

## PARTICIPANTS

Participants for this study were selected using a voluntary response method. In detail, 125 flyers were delivered to P.W. Moore Elementary School parents of Kindergarten, 1<sup>st</sup> grade, and 2<sup>nd</sup> grade students.

Workshop of Spring 2015 K – 2 Parents			
	Kindergarten	1 <sup>st</sup> Grade	2 <sup>nd</sup> Grade
Male	3	3	4
Female	9	10	11

TABLE 1. K – 2 Parent Demographics

## METHODOLOGY

Pre and post surveys were used to gage workshop results pertaining to parent involvement. These surveys consisted of twenty-five questions which addressed the following: North Carolina Standards for K-2 grade mathematics; parent’s skills/understanding of children’s mathematics homework; and parent’s participation in school related activities. In these questions, parents chose their level of agreement using 1 as strongly disagree, 2 as disagree, 3 as neutral, 4 as agree, and 5 as strongly agree. Once pre surveys were distributed parents would attend an educational workshop pertaining to their child’s grade level. At the conclusion of the workshop, parents completed post surveys to assess whether or not the information was conveyed correctly.



## SURVEY INSTRUMENT

Pre and post surveys were used to gage workshop results pertaining to Parent Involvement. These surveys consisted of twenty-five questions which addressed the following: North Carolina Standards for K-2 grade mathematics; parent’s skills/understanding of children’s mathematics homework; and parent’s participation in school related activities. In these questions, parents chose their level of agreement using a range from 1-5: 1 as strongly disagree, 2 as disagree, 3 as neutral, 4 as agree, and 5 as strongly agree. Once pre surveys were distributed parents would attend an educational workshop pertaining to their child’s grade level. At the conclusion of the workshop, parents completed post surveys to assess whether or not the information was conveyed correctly.

**REU Parent Involvement Survey**

As a parent or caregiver, your involvement in your child’s learning and school is valuable and important. This survey asks for your opinions about what your child’s school does to get you involved in your child’s education in mathematics. Your individual responses will remain confidential. Please give each statement relevant thought in your response.

Gender:  M  F    Relationship to child: \_\_\_\_\_    Grade Level:  K  1  2

Indicate the extent to which you agree or disagree by filling in the appropriate box. Please address your response based on the statements which range from "1" Strongly Disagree to "5" Strongly Agree as they are represented across the row.

	1	2	3	4	5
<b>Focus Question 1</b>					
I understand the North Carolina Common Core State Standards (NC-CCSS) for mathematics.					
I am invited to meetings so that I can learn about what is going on in the school concerning CCSS.					
My child’s teacher adjusts their teaching styles to meet the mathematics needs of my child.					
I believe my child is challenged by the school’s mathematics curriculum.					
I am asked what my child’s learning goals are for mathematics.					
My child’s teacher sends home information about NC-CCSS in mathematics.					
The school has meetings that continually inform parents about NC-CCSS in mathematics.					
<b>Focus Question 2</b>					
I receive information on what I can do at home to help my child improve or advance their learning in mathematics.					
I receive informational exercises on building mathematics skill for my child.					
I receive information on grade level mathematics development.					
When my child’s school communicates with me it is easy for me to read or understand mathematics homework assignments.					
I receive information on what my child should learn and be able to do at the end of each grade.					
My child receives the support required to meet individual needs in mathematics.					
<b>Focus Question 3</b>					
My child’s teacher asks to meet with me face to face at least once a year to talk about how my child is doing in mathematics.					
My child’s school stays in good communication with me (e.g., letters, phone calls or e-mails).					
If I have a question, concern or comment about mathematics the teacher, principal or guidance counselor gets back to me right away.					
There are many different ways I can be involved with school events and activities, either at the school itself, at home or in the community.					
When I volunteer at the school, I am given training and resources to do my task well.					
I receive regular updates from the teacher on my child’s progress in mathematics.					
My child’s teacher holds high expectations for my child in mathematics.					
I can be involved in school improvement planning and decision-making at my child’s school.					
I am invited to help plan parent involvement activities.					
I am given information about community services that help with parents’ needs (adult education, job, health, mental health, utilities, etc.).					
My involvement in my child’s education is valued at my school.					
My child’s school is a friendly environment for students, parents and families.					



## CHI-SQUARE TEST

The Chi-Square Test showed a comparison of the observed values (parent’s survey response) and the expected values( parent’s strong agreement), which are listed above and concluded that the impact of the Parent Involvement Workshop was considered to be a positive factor in influencing parent’s attitudes of the research focus questions. In the analysis of the pre and post surveys, the Chi-Square Test determined a statically significant relationship exists.

Post Survey for Kindergarten Chi Square Test				
0.99634689	0.83430826	0.996334689	0.996334689	0.996334689
0.89762597	0.955834726	0.816536798	0.996334689	0.998821103
0.946307674	0.994249945	0.983452951	0.994249945	0.996334689
0.983452951	0.98789554	0.98789554	0.971699157	0.99782286
0.994249945	0.998821103	0.991467607	0.883171378	0.994249945

Pre Survey for Kindergarten Chi Square Test				
0.816536798	0.51412362	0.883171378	0.883171378	0.162606262
0.455937195	0.085586791	0.92407596	0.616305225	0.779187716
0.946307674	0.883171378	0.851382575	0.991467607	0.897691671
0.997822863	0.946307674	0.224820642	0.574903424	0.92407593
0.92407593	0.637119407	0.595548507	0.739918292	0.816536798

Post Survey for First Grade Chi Square Test				
0.999728667	0.99999958	0.001966995	0.987809831	0.99999641
0.99999641	0.99998394	0.99994961	0.99999641	0.99998394
0.99999641	0.99999641	0.999873664	0.99999641	0.99999641
0.99994961	0.99999641	0.999873664	0.99998394	0.999873664
0.99999958	0.99994961	0.99999958	0.99994964	0.995027368

Pre Survey for First Grade Chi Square Test				
0.054280552	0.173522716	0.211644484	0.14871972	0.244258546
0.47735613	0.173522716	0.22212358	0.378862888	0.173522716
0.267987205	0.426663308	0.443263278	0.061093509	0.173522716
0.2442585546	0.47735613	0.132097256	0.378862888	0.306598116
0.191837347	0.410386118	0.22212358	0.394447922	0.306598116

Pre Survey for Second Grade Chi Square Test				
0.762183463	0.982829904	0.982829904	0.855789985	0.867463996
0.979430546	0.867463996	0.988405921	0.942146779	0.996553861
0.990638066	0.955380899	0.966491465	0.942146779	0.97558938
0.961195794	0.990638066	0.878648247	0.878648247	0.988405921
0.979430546	0.670257798	0.606302782	0.990638066	0.996553861

Post Survey for Second Grade Chi Square Test				
0.991467607	0.99776595	0.999988388	0.999988388	0.999776595
0.999776595	0.999988388	0.999933619	0.999933619	0.999988388
0.999988388	0.999776595	0.999988388	0.999933619	0.999933619
0.999988388	0.999988388	0.99999443	0.999933619	0.999988388
0.999933619	0.99999443	0.999933619	0.999933619	0.999988388

## RESULTS

The results gathered from the pre-survey and post-survey instruments were used to determine whether or not the information conveyed during the workshop produced any changes parent’s attitudes toward K-2 grade mathematics. Examining the Focus Question Comparison graph, there is a notable increase in agreement with the questions dealing with the third focus question. This question discussed parent’s motivation to become involved in the school environment. The workshop primarily focused on the ways in which parents can use themselves as a tool to make a better learning setting for their children.

$$\chi^2 = \sum \frac{(Observed - Expected)^2}{Expected}$$

## CONCLUSION

The results of the survey concluded that parent involvement contributes to growth in student learning. Good parents accomplish things, including motivating and engaging their children, acquiring new knowledge and skills, and collaborating with teachers. But those accomplishments best serve their purpose when they lead their child to help improve student achievement. Professional development leads effective parents to support their children in the mathematics lesson by assisting with homework assignments and keeping in contact with the child’s teacher when need be upon measuring students’ growth in learning along the way. The workshop provided richer information on what skills and topics students are learning according to the Common Core State Standards. In this way, the standards provided the parents with a different perspective on mathematics and understand the importance of being involved with their child’s education. At the conclusion of the workshop, parents understood the mathematics language by constructing different activities and were given different tips that can be used in the home.

## FUTURE WORK

The long-term goal is to build stronger parent support system in Kindergarten, 1<sup>st</sup> grade and 2<sup>nd</sup> grade Mathematics in Pasquotank County Public Schools using the North Carolina Common core State Standards.

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## REFERENCES

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- For a full reference listing, please see REU Math Team webpage.